Information letter

The information in this letter is valid for the following software versions and systems

UNICORN™ version 3.21
UNICORN Analysis Module version 3.10
ÄKTA™ design systems:
- ÄKTAexplorer™ 100
- ÄKTAexplorer 100Air
- ÄKTAexplorer 10
- ÄKTAexplorer 10S
- ÄKTAexplorer 10 XT
- ÄKTApurifier™ 10
- ÄKTApurifier 10 XT
- ÄKTApurifier 100
- ÄKTAFPLC™
- ÄKTAbasic™ 10
- ÄKTAbasic 10 XT
- ÄKTAbasic 100
- ÄKTA™ oligopilot™

BioProcess™
BioPilot™
FPLC™
OligoPilot™
OligoProcess™

Introduction

UNICORN 3.21 is designed specifically to work under Windows™ NT operating system. Functionality present in earlier UNICORN versions remains the same. New features, some also included in UNICORN 3.1, are listed in this information letter and give increased flexibility in system control and faster data access.

The total functionality of UNICORN 3.21 is described in UNICORN version 3.10 and 3.20 user manuals and in UNICORN Analysis Module version 3.10 user manual.

Amersham Biosciences

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Installation

UNICORN is supplied on CD-ROM together with standard ÄKTAdesign system strategies. BioProcess and customized system strategies are supplied separately according to user specification. Installation software allows an interrupt to be set during installation and default settings are not assumed. Strategy information is shown during the strategy selection procedure.

UNICORN 3.21 new features

Some of these features were also included in UNICORN 3.1.
Please note that a new system strategy may be required

Main Menu

- When adding new components to a system, instructions are shown only for the specific component selected

Method Editor

For UNICORN controlled ÄKTAdesign systems and new BioProcess systems that use a CU900 control board.

- Run conditions are maintained until a pre-defined condition is achieved using a **Hold_until** instruction (new strategy required)

System Control

Curve and run data

- Interactive run data: using a double click on the left mouse button to select >> in a run data box gives direct access to the manual instructions (new strategy required)

Flow scheme

- Interactive flow scheme: using the mouse to select a component in the flow scheme gives direct access to instructions for that component (new strategy required)

Fraction Collection

An XY fraction collector, Frac-950, can be controlled by UNICORN 3.21.

Computer requirements

Pentium II/333 MHz or later (minimum Pentium/90 MHz)
One system: 64 Mb RAM (minimum 32 Mb)
Two or more systems: 128 Mb RAM (minimum 64 Mb)
1 Gb hard disk (150 Mb to run UNICORN), NTFS file system
Colour monitor, 1024 x 768 (minimum 800 x 600*) with 64k colours
1 ISA slot/connected system or 1 PCI slot/connected system
Mouse
CD-ROM drive
Mb (3.5") diskette drive
*option when industrially hardened screens are required

Software requirements for UNICORN 3.21

Windows NT Workstation 4.0 + Service Pack 5 or later

Network requirements

Supported network cards:
3COM Etherlink III
Compaq™ Netelligent 10/100 TX Embedded UTP Controller
Compaq Integrated NetFlex-3 Controller
AMD PCNET PCI Ethernet Adapter (Integrated)
Novell™ NetWare™ version 4.50.819 or later or Windows NT Server 4.0
A valid network connection

Important advice on operation

Viewing long runs

On long runs that exceed the x-axis limits (21000), the curves window in System Control may show a false (shortened) x-axis.
Action: After completion of the run, open the result in Evaluation to see the proper curve window.

Installation

Always re-install Windows NT Service Pack after a UNICORN installation.

Novell Netware problems

The Method Editor may terminate if Novell Netware version 4.83 is used.
Action: Install Service pack 1 for Novell Netware version 4.83.

Logoff / logon Windows NT

UNICORN will not be able to connect to the system(s) if you logoff from Windows NT and then logon as a different user, followed by starting UNICORN.
Action: Shut down and restart the computer, then start UNICORN and connect to the system(s).

Restricting the use of the “Continue” function

It is not possible to restrict the ability to use the “CONTINUE” function in the System Control module. All users are able to use the “CONTINUE” function regardless of their access rights.

Location of drives

UNICORN cannot locate a drive through the User Setup in Main Menu if the drive is empty.
Action: Ensure that the drive to be located contains some type of file.

Installation of new strategy

Check default values for System Settings and recalibrate all relevant modules.

Installation of new templates

The 16-bit unpacking programme used during installation of new templates cannot open folders with long names or names which contain symbols.
Action: Change any folder names on drive c: where necessary before beginning installation.

MethodQueue

If you choose to start a MethodQueue at a certain time point (Start at:) and the methods are to be run at different dates, the methods to be run at the later date will not be run at all.
Action: No action possible.

MethodQueue system conflict

The following problem may occur when running multiple systems from one PC. If a MethodQueue is started on one system (system 1) it will Stop (Indication: Restart button in the System Control window is activated) if one of the following events occurs on another system (system 2) controlled from the same PC:

- Disconnection of system 2
- System 2 is switched off
- A MethodQueue is started on system 2, then Cancel is pressed during start protocol
- A method run is started on system 2 but subsequently aborts (e.g. because of a result name conflict)

Action: No action possible.

Pressure conversion in System Control

If you use a pressure unit different from the one that the strategy is using by default, the conversion between MPa, bar and psi does not work.
Action: Use the default strategy unit.

Connection to systems

The OPC Data Access server included in UNICORN will always connect to the first system defined in the UNICORN system table.
Action: No action possible.

Using a method for another system

In the Method Editor, it is possible to save a method for a system other than the one for which it was originally created. Certain checks are made on the method during this process e.g. instructions that cannot be used in the new system are marked as red. However, variables are not checked and there is a possibility that a variable value will be outside of the parameter limits. As an example, a method written for ÄKTAexplorer 100 may contain a variable Flow parameter set to 50 ml/min. If this method is used on ÄKTAexplorer 10, this flow rate will be too high.
Action: A warning message is displayed if a faulty method is being started, but the message does not tell you which variable parameter is incorrect. Therefore we recommend you manually check all variables and scouting to ensure that all values are within the parameter limits before the method is used on the new system.

Note: If you still cannot find the error, try to remove all variables from the instructions and save the method. All incorrect instructions will then be marked in red.

Template method file name conventions

Template method file names on a local station may contain one or two dots, i.e. *.met and *..met. This will not affect the function of the templates.

Transferring MethodQueue folders

The contents of MethodQueue folders from UNICORN 1.10 and UNICORN 2.0 cannot be seen when transferred into UNICORN 3.21.
Action: There is no backward compatibility with earlier versions of UNICORN for the MethodQueue function. To solve the problem, open and convert each method into UNICORN 3.21 and create a new MethodQueue.

Importing SMART manager example result files

The SMART manager result files included on the installation CD must be copied to the hard disk before they can be imported into the Evaluation module. The files cannot be opened directly from the CD.
Note: The files will be converted into UNICORN format and cannot be used in the SMART manager again.

Decimal separator

Commas may not be used a separators for decimal values.
Action: Use decimal points as separators.

UV curve names

When using a variable wavelength detector (Monitor UV-900) UV curves are automatically given names containing the UV wavelength. Names are displayed together with the curve in the System Control curve window. At the end of a run the curve name is changed back to its default name but the curve data from the run is still seen in the window and therefore the curve and curve name do not match.
Action: No action required. UV curves are always stored in the result file with the correct wavelength information in the curve name.

Creating methods using block programming

To ensure that the **End_block** is automatically updated when a gradient length is programmed or changed the gradient length should be programmed in two steps.
Action: Select 0 for gradient length, press Insert
Select required gradient length, press Change

Programming Watch functions

The variable parameter Action: Ready does not function when programming Watch events within the Method Editor.
Action: Use a Watch event that calls for a block containing the instruction Ready.

System Report

If a System report is requested during a run, the program may sometimes crash and a reboot is required.
Action: Do not request a System report during a run.

Using the instructions Record_on and End_Timer

If you during manual runs execute the instructions **Record_on** and **End_Timer** simultaneously, there is a risk for the run going on infinitely.
Action: Do not execute the instructions **Record_on** and **End_Timer** simultaneously.

Blank fields in Instruction box

Occasionally the Instruction box in System Control appears with only blank fields.
Action: Close the Instruction box and reopen it.

Integration

Peak labels and start/end markers shown in the curve window are always calculated from the latest integration. If an earlier calculated baseline or peak table is selected, the peak information in the curve window is not updated. Displayed peak labels and markers and the peak table will not correspond.
Action: Always work with the latest calculated baseline and peak table.

Saving modified result files

When a chromatogram is removed from a result file and the file is then saved the evaluation module closes.
Action: This is a function of a drive routine in Novell Intranet Ware. This fault has not been seen when using Novell NetWare v4.50.819 or v4.60.202.

Reports with litre base

If litre is used as the unit, variables will be printed as ml in the variable list when reports are generated

Printing chromatograms

When several chromatograms have been imported into a single window the order in which they appear on a print out may not be as required e.g. a comparison of several different runs at different pH may not be displayed in a consecutive numerical order of pH values.
Action: This is a function of Windows operating system. The problem can be resolved by importing the curves in the same order as is required for printing and highlighting the first curve in the series.

Printed method information

When Method Information is printed in a Method Information print, a customized report or a standard report, the result file name will appear in place of the method name.
Action: Print a report and select the method file name in the **Header** tab. De-select the **Info** item in the **Documentation** tab.

Evaluation procedure with print

If you run an Evaluation procedure including printing a report, the system communication may crash and the result file may be saved in the Failed directory.
Action: Do not use automatic evaluation procedures with print.

Curve presentation

Curves displayed as thick, dashed lines on screen are printed as single lines.
Action: No action possible. This is a function of the line drawing routine in Windows NT.

Landscape printing

In some installations the HP DeskJet 895 will not print documents from UNICORN in landscape mode.
Action: Do not use the printer driver for HP DeskJet 895 that is supplied with Windows NT. Select the printer driver for HP DeskJet 855C instead.

UNICORN 3.2 manual, ed.AA, errata

The instruction **GoTo_Tube** does not exist.
Action: Use the common fractionation instructions.

Resetting the position of the fraction collector for small and large tubes.
Action: Use **Reset_Frac_Position**.

Using **AccumulatorWash** instruction for ÄKTAdesign systems (excluding ÄKTAFPLC).
Action: Use manual control to begin flow and turn the Outlet valve to the frac position

ÄKTAdesign systems

Access to improvements in UNICORN 3.21:

The items listed below are dependent upon the system strategy and cannot be utilized if an earlier system strategy is used.

New features

- When adding new components to a system, instructions are shown only for the specific component selected
- Interactive flow scheme
- Interactive run data
- **Hold_ Until** instruction

Action: New standard ÄKTAdesign system strategies are being updated and supplied on UNICORN CD-ROM as soon as they are fully tested. Please contact your local Amersham Biosciences representative if you do not have the latest strategy.

Installation test ÄKTAbasic 10

There is an error in the automatic evaluation of the installation test for strategy B10F300. The Step Response will not be evaluated correctly and the result will be Step Response Rejected.
Action: Perform a manual evaluation of the Step Response according to the Basic user manual or use the template from B10_300.

Differing BufferPrep recipes

If you open a template from strategy version 1.xx, you may get a message: "Method recipe is different from corresponding Global / Personal recipe. Update method recipe?"
Action: Answer Yes and save the template as your method or as a new template. Do not use the old template.
You may also update the strategy to version 2.xx (available during the autumn).

Columns with 0.3 MPa pressure limit

Columns with a 0.3 MPa pressure limit in their data file have a pressure limit of 0.5 MPa in the UNICORN column list, to enable running them also in ÄKTA systems with high system pressure.
Action: Change the pressure limit of the column to 0.3 MPa if your ÄKTA system has a low (under 0.2 MPa) system pressure.

System calibration

When pressure has been calibrated and the flow re-started the pressure values on screen in System Control show zero pressure.
Action: Press **End**. Restart **Flow**.

BufferPrep mode

If a method compilation error appears when trying to run a BufferPrep mode method, the method does not start but the BufferPrep recipe is still downloaded to the Pump instrument module. An error will then occur as soon as another BufferPrep recipe is downloaded, e.g. if you try to run a BufferPrep method again. This error will also occur when a BufferPrep recipe is selected manually before a method running in BufferPrep mode is started and when running a method which includes BufferPrep.
Action: To "remove" the downloaded BufferPrep recipe from the Pump module, execute any instruction, e.g. a **Flow** instruction, and then press the **End** button. (The dummy instruction must be executed for the **End** button to be enabled.)
This action applies to all situations where you want to abort BufferPrep mode.

PumpWash

If you press the **Continue** button during **PumpWash** execution the Pump module may be set in **End** mode although the method continues to execute. This affects the whole method execution and will most probably give incorrect results.
Action: Never press **Continue** during **PumpWash** execution.

Module calibrations

Calibrations made directly on ÄKTAdesign system modules are logged only in the System Control logbook and not in the Calibration page of Documentation or in the Audit Trail. This means that Calibration page and Audit Trail information might not be up-to-date.
Action: Always calibrate ÄKTAdesign system modules by using UNICORN calibration functions in System Control.

Alarm during PumpWash or SystemWash execution

If an ALARM event occurs during **PumpWash**, the system is Paused as intended but is Continued when **PumpWash** has ended. (The same applies to the **SystemWash** instruction.) Normally, the system will remain in Pause after an ALARM.
Action: No action possible.

Outlet valve positions

The following sequence will cause the outlet valve positions to be wrong when used with 10 and 100 system strategies in combination with a Frac-900:

Insert a flowrate and fractionation command
Switch Outlet Valve to F1
Switch back Outlet Valve to F2

This will cause the Outlet Valve to be switched to F2, but it will immediately switch back to F1. This is not noted in the logbook. Any other position than F2 for the Outlet Valve works well. The problem occurs both if the sequence is used manually or in a method.
Action: Give the F2 command again or choose another outlet position.

FractionCollector instruction

When a previous **FractionCollector** command with **FracSize > 0 ml** has been executed and the Outlet valve has been switched manually the **FractionCollector** instruction will not always set the Outlet valve to position F2 to redirect the flow path to the fraction collector.
Action: Insert a **FractionationStop** instruction or a **FractionCollector** instruction with **FracSize = 0 ml** immediately before the **FractionCollector** instruction set to **FracSize > 0 ml**. Alternatively, insert an **OutletValve = F2** instruction immediately after this instruction.

Fractionation after SystemWash

If you, in a method or manually, after a SystemWash instruction set a flow rate of 10 ml/min (for ÄKTA 10 ml systems) or 25 ml/min (for ÄKTA 100 ml systems), followed by a Fractionation instruction, the fractionation will not work properly.
Action: Use a flow rate just under or above 10 ml/min and 25 ml/min for the respective ÄKTA system (for example, 9,9 ml/min and 24,9 ml/min).

ÄKTAsystem fraction collector 900 and 950

Self-oscillation of the outlet valve

If a **FractionationStop** instruction is given, and a new fraction instruction is then initiated within the following six seconds, self-oscillation of the outlet valve may occur (The outlet valve alters between Waste and F2).
Action: Set the **FractionationStop** and the following instruction further apart.

This self-oscillation may also appear during a peak fractionation.
Action: Enable both elution and peak fractionation.

Frac-950 fraction collector

The final tube in the Frac-950 cannot be defined in Run Setup within the Method Editor.
Action: Define the final tube in the method Start Protocol within System control.

Tubes for the Frac-950 18 mm rack

Some 18 mm tubes may not fit for the Frac-950 18 mm rack.
Action: Following tubes are recommended for the Frac-950 18 mm rack:
Falcon 15 ml 17x120mm
Sarstedt 10 ml 16x100mm
Sarstedt 15 ml 17x120mm
Borex 16x100mm

Elkay 15ml
TPP 15 ml
Cerbo 17x100mm
LP-Italiano 16x100mm

Programming Frac-950 on Start protocol

For rack 30 mm tubes, default position, A1, for the alternative **Tube number** in the variable **Start_Frac_at**, found on the Variables page of Start protocol, is incorrect.
Action: Choose any other tube number.

ÄKTAexplorer systems

SystemWash

If a **Gradient** instruction is executed during **SystemWash**, the system is washed with the selected gradient composition.

BioProcess, BioPilot and FPLC

The features listed below are not accessible in systems using a CU900 control board with an old strategy.

- When adding new components to a system, instructions are shown only for the specific component selected
- Interactive flow scheme
- Interactive run data
- **Hold_until** instruction

Alarm values

For systems using a UNICORN controller board AT it may not be possible to see the value of an alarm in the curve views of Evaluation or System Control. This may happen if, for example, the value changes very quickly.
Action: The value will always be found in the logbook.

Loop Instruction

If the **Loop** instruction does not function properly, an update of the prom on UNICORN control box AT is needed (this update will have been done on any systems already updated to UNICORN 3.0).
Action: Contact your local Amersham Biosciences service engineer to request a prom update to version 1.14 (or higher).

PAUSE as Watch action on systems using an AT card

When a method contains a watch command with the action PAUSE, the system will not go into a permanent state of pause, but it will rather CONTINUE after approximately one minute. This problem only affects systems using an AT card. The problem exists in the EPROM, v1.16 and earlier, of the controller card.
Action: Instead of placing the PAUSE as the action of the Watch command, create a block which contains the PAUSE command and call this block.

BioPilot, FPLC

Fraction marks

Some fraction marks are occasionally omitted when the fraction collector has been started with the instruction **Frac:Start**.
Action: For version 2.0 of a standard strategy, use the instruction **Collect** instead.

Pressure limit

When the pressure limit set in UNICORN is exceeded, it may take about one second before a run is paused.
Action: For a faster response to pressure changes set the pressure limit on the pumps also.

Superloop (only for Multipurpose strategy)

If the flow rate is changed during execution of the instruction **Superloop**, the time for filling or emptying Superloop™ is not adjusted to the new flow rate.
Action: Do not change the flow rate when filling or emptying the Superloop.

Creating methods

When creating new methods for BioPilot and FPLC systems, you have to set **Technique** to **Any** to be able to select appropriate templates.
Action: No action possible.

Creating new templates

When creating new templates for BioPilot and FPLC systems, you have to set Column to **Any** in order to save as a new template
Action: No action possible

Changing column

If you change column in a method made for a BioPilot or FPLC system, there will not be a question about Column Value Update as with ÄKTAdesign systems.
Action: No action possible.

ActionIfPCFail setting

The system setting called **ActionIfPCFail** defines the action to be taken in case of broken communication between PC and system. Either the method is aborted or continues.
Action: No action possible. In case of broken communication between PC and system, the system will “freeze” and continue to work with same flow etc. until the communication is working again.

BioProcess

Missing parameter names

When you select an instruction in the instruction box of the System control module, the names for the parameters may not be displayed immediately.
Action: The missing names are displayed as soon as a parameter value is selected or the scroll bar is used.

Changing column

If you choose a column for a method made for a BioProcess system, there will not be a question about Column Value Update as with ÄKTAdesign systems.
Action: No action possible.

Tuning

In situations where more than one instrument has the possibility for feedback control in the **Tune** window, a range problem may occur if the actual range is different between the two instrument loops. Specifically, a "Setpoint out of range" warning may occur if the lower range has been used before the higher range.
Action: If more than one feedback control possibility exists, choose the same parameter twice in the **Feedback Control** window.

Template "Empty"

When the template "Empty" has been selected, the unit for the column volume in the **Base** instruction in the text window is incorrectly shown as ml. The real unit is litre.
Action: Mark the **Base** instruction and click on **Replace** in the instruction dialogue box to change the unit to litre.

ActionIfPCFail setting

The system setting called **ActionIfPCFail** defines the action to be taken in case of broken communication between PC and system. Either the method is aborted or continues.
Action: No action possible. In case of broken communication between PC and system, the system will "freeze" and continue to work with same flow etc. until the communication is working again.

OligoPilot

Technique selection

The list of techniques available for selection includes techniques used for ÄKTAdesign systems.
Action: Select only those techniques that are suitable for OligoPilot systems.

Important Information

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Amersham Biosciences AB
Björkgatan 30
SE-751 84 Uppsala
Sweden

Amersham Biosciences UK Limited
Amersham Place
Little Chalfont
Buckinghamshire
England HP7 9NA

Amersham Biosciences Europe GmbH
Munzinger Strasse 9
D-79111 Freiburg
Germany

Amersham Biosciences Corp
800 Centennial Avenue
P.O. Box 1327
Piscataway, NJ 08855
USA

Amersham Biosciences China Limited
13/F., Tower I
Ever Gain Plaza
88 Container Port Road
Kwai Chung, New Territories
Hong Kong

Amersham Biosciences K.K.
Sanken Building, 3-25-1
Hyakunincho, Shinjuku-ku
Tokyo 169-0073
Japan.

www.amershambiosciences.com

Amersham Biosciences